Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)	ET Docket No. 92-9
	)	RM-7981
	)	RM-8004

COMMENTS OF
MCI TELECOMMUNICATIONS CORPORATION

MCI Telecommunications Corporation ("MCI"), by its undersigned attorneys, hereby submits its comments in response to the Commission's Further Notice of Proposed Rule Making ("Further Notice") in the above-captioned proceeding. In the Further Notice, the Commission proposes to reallocate five frequency bands above 3 GHz to private and common carrier fixed microwave users on a co-primary basis and also proposes channelization plans and technical standards to govern use of these bands. The Commission's Further Notice responds to petitions for rule making filed by the Utilities Telecommunications Council (RM-7981) and Alcatel Network Systems (RM-8004).

MCI currently operates approximately 275 fixed point-to-point microwave paths in the 4 GHz common carrier band, 225 paths in the 6 GHz band, and 100 paths in the 11 GHz band. Ongoing expansion of this fixed microwave service use through both frequency additions to existing paths and construction of new paths is an integral part of the overall MCI network development. Adequate frequency

availability for fixed common carrier microwave paths is therefore of great concern to MCI.

The antenna standards proposed in the Further Notice (revised §21.108 and §94.75) do not represent an improvement over the current obsolete standards. Excellent frequency reuse can be achieved with modern antennas, which are readily available at a reasonable cost. It is not uncommon in the 6 GHz common carrier band (5925-6425 MHz) to use the same frequency pair in four directions from a site without causing or incurring interference.

Such reuse is not possible with minimum Standard A antennas currently in widespread use. If the Commission does not adopt standards that are more stringent than these outdated Standard A antenna minimums, new narrow-bandwidth single-frequency users who do not foresee a need to expand their own systems will build paths that will block future expansion of wide-bandwidth, multiple-frequency paths licensed to others. The Commission, with input from the limited number of point-to-point microwave antenna manufacturers and other interested parties, could readily develop new and easily attainable Standard A requirements which permit greater spectrum reuse. Revision of the Standard A minimums is already long overdue, but the substantial increase in spectrum congestion resulting from this proceeding makes prompt action on this issue all the more important.

In response to the original Notice of Proposed Rule Making in this proceeding, MCI commented that efficient spectrum utilization will only be possible if sharing is limited to compatible band-

widths. For example, if all bandwidths shared the same spectrum, a single 400 kHz frequency could block the use of an entire 30 MHz channel. The Further Notice recognizes this to some extent, as an effort has been made to make bandwidths compatible to facilitate sharing. However, the channelization plan in the Further Notice unnecessarily reduces the number of wide band channels available in the 4 GHz and 6 GHz common carrier bands. The Further Notice provides for the following channel allocations in the five bands:

Band (MHz)	400	800	1.25	1.6	2.5	3.75	5	10	20	30	40
3700-4200	24	12		24			6	25	12		
5925-6425	24	12		42			12	24		8	
6525-6875	12	6		45			15	17			
10550-10680	24	12	4	30	26	4	8				
10700-11700								50		16	
Totals	84	42	4	141	26	4	41	116	12	24	0

MCI recommends the adoption of an alternative channelization approach. Under this alternative, the band edge spectrum in the 4 GHz, 6 GHz and 11 GHz common carrier bands would accommodate several 400 kHz, 800 kHz, and 1.6 MHz channel pairs, and the main body of these bands would be fully channelized with the wider 20 MHz, 30 MHz, and 40 MHz channels. The 6 GHz private microwave band

(6525-6875 MHz) would be channelized for the intermediate 5 MHz and 10 MHz channels.

Adoption of this alternative approach would change the numbers of channels of each bandwidth to the following:

Band (MHz)	400	800	1.25	1.6	2.5	3.75	5	10	20	30	40
3700-4200	24	12		6					12		6
5925-6425	24	12		6						8	
6525-6875							35	17			
10550-10680	24	12	4	30	26	4	8				
10700-11700								50		16	12
Totals	72	36	4	42	26	4	43	67	12	24	18

It should be noted that this alternative approach retains the existing twelve 40 MHz bandwidth channels at 11 GHz and adds six 40 MHz bandwidth channels in the 4 GHz band. Microwave equipment utilizing 40 MHz bandwidth is becoming available. This new equipment is both highly spectrally efficient and compatible with synchronous optical networks (SONET). However, the technology used (256 QAM) could not be effectively implemented within the narrower 30 MHz bandwidths proposed in the Further Notice.

The alternative channelization plan recommended by MCI would provide fewer frequency alternatives for the narrow-bandwidth

channels. However, MCI believes that it is unlikely that equipment manufacturers will develop products adaptable to the numerous frequency choices listed in the Further Notice. Therefore, these extensive allocations will only serve to disrupt wide-bandwidth system growth.

Frequency sharing between analog and digital systems should be avoided. The interference potential between these signal types is much greater than between like systems. The proposed channelization of the 6 GHz private microwave spectrum retains the interstitial 5 MHz channels on top of the 10 MHz channels, a strategy that applies only to analog systems. Between a 5 MHz, 120 channel path and a 10 MHz, 300 channel path, the C/I objective drops from 61 dB to 32 dB (or 14 dB) as the separation changes from co-channel to adjacent, interstitial channel. For digital carriers, the objective drops only from 78 dB to 75 dB. New analog message paths are recognized as scarce and should be restricted to this 6 GHz private microwave band. Consideration should be given to channelizing this band with some interstitial spacings for analog systems and some fully overlapping spacings for digital systems.

The path length and EIRP limitations proposed in the Rule changes (revised §21.710 and §94.79) do not provide a continuum for allowed EIRP at the minimum path length point. For example, in the 6 GHz common carrier band the maximum EIRP of +85 dBm drops to +60 dBm at the 17 km point and decreases logarithmically for shorter paths. This step function in the allowed EIRP should be eliminat-

ed. Note also that the revised §94.73 chart does not match the existing §21.107 chart.

MCI is an active member of the National Spectrum Managers Association ("NSMA") and is contributing to the NSMA comments in response to the Further Notice. The issues of grandfathering of existing systems, protection of future growth frequency plans, and use of automatic transmitter power control (ATPC) are well covered in the NSMA comments. MCI fully supports these views and will not reiterate them here.

MCI also supports the increase in efficiency of spectrum use that will result from sharing based on compatible signal types rather than sharing based on similar business purposes. Further extending this benefit by including non-classified government spectrum will logically follow. MCI's comments filed in response to the Commission's initial notice in this proceeding addressed this issue. MCI strongly encourages the Commission to continue pursuing this matter through the National Telecommunications and Information Administration.

For the reasons set forth herein and in MCI's initial comments, MCI urges the Commission to pursue revision of the technical standards and channelization plans for the microwave bands above 3 GHz.

Respectfully submitted,
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CERTIFICATE OF SERVICE

I, Vernell V. Garey, do hereby certify that copies of the foregoing "MCI Reply Comments" were served by first class mail, postage paid (unless otherwise indicated) on the following parties this 11th day of December, 1992:

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